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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/856,460	08/07/2001	Herve Lescuyer	01115	6367

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DENNISON, SCHULTZ, DOUGHERTY & MACDONALD
1727 KING STREET
SUITE 105
ALEXANDRIA, VA 22314

EXAMINER

MENON, KRISHNAN S

ART UNIT PAPER NUMBER

1723

DATE MAILED: 06/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/856,460	Applicant(s) LESCUYER ET AL.	
	Examiner Krishnan S Menon	Art Unit 1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2004.
 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-9 and 11 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-9 and 11 are pending.

In view of the appeal brief filed on 6/1/04, PROSECUTION IS HEREBY REOPENED. A new ground for rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 8 is for a product and claim 5 from which it depends is for a process. Claim 9 depends from claim 8. Therefore, claims 8 and 9 effectively recite a product and a process. A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 35 U.S.C. 112,

second paragraph. In *Ex parte Lyell*, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990), a claim directed to an automatic transmission workstand and the method steps of using it was held to be ambiguous and properly rejected under 35 U.S.C. 112, second paragraph. Such claims should also be rejected under 35 U.S.C. 101 based on the theory that the claim is directed to neither a "process" nor a "machine," but rather embraces or overlaps two different statutory classes of invention set forth in 35 U.S.C. 101 which is drafted so as to set forth the statutory classes of invention in the alternative only. *Id.* at 1551. For examination purpose, claim 8 will be considered as claiming corundum particles of porosity 5-30% and claim 9 as a particle bed of corundum of claim 8.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 8 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Neidhardt et al (US 4,177,235).

Neidhardt teaches corundum particles (abstract), but does not specifically teach the porosity. However, since the process used for making the corundum particles is the same as that used by the applicant, the corundum particles also is inherently expected to have similar porosity (see col 3 line 27- col 4 line 19).

Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may

make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection. "There is nothing inconsistent in concurrent rejections for obviousness under 35 U.S.C. 103 and for anticipation under 35 U.S.C. 102." In re Best, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA 1977). This same rationale should also apply to product, apparatus, and process claims claimed in terms of function, property or characteristic. Therefore, a 35 U.S.C. 102/103 rejection is appropriate for these types of claims as well as for composition claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1,2,4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pryor (US 4,413,813) in view of JP 07-016698 A. and Robyn et al (US 5,229,337).

Claim 1: Pryor teaches a method for filtering liquid metal comprising passing through a bed of refractory materials like alumina (abstract, figures, col 3 lines 36-46). Pryor does not teach the open porosity of the refractory material. JP teaches the open porosity (given as apparent porosity, apparent porosity is

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same as open porosity – see ref Robyn col 10 lines 9-15) of refractory particles used in molten metal processing as $\leq 20\%$ (see English abstract). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of JP in the teaching of Pryor because JP teaches particles having high resistance 'over destruction by heating or wear' (see para 0011 and 0012), which would be good for repeat use as taught by Pryor (col 5 lines 37-43).

Claim 6: liquid metal is aluminum, etc: Pryor teaches the process as generic for all molten metals. Molten aluminum is taught in col 1 lines 55-64.

Claim 2: Pryor in view of JP and Robyn do not teach the residence time of the liquid metal in the bed. However, residence time is a variable depending on the metal to be filtered, its impurity content and the bed material capacity, and therefore, can be optimized. Discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. In re Boesch and Slaney, 205 USPQ 215 (CCPA 1980); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Aller, 42 CCPA 824, 220 F.2d 454, 105 USPQ 233 (1955).

Claim 4: particle size from 0.2-2 mm is taught by Pryor col 4 lines 5-10. Bed thickness, like the residence time, will depend on the molten metal, its impurity content and the bed capacity, and can be optimized – In re Boesch, etc.

2. Claims 3 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pryor (US 4,413,813) in view of JP 07-016698 A and Robyn et al (US 5,229,337) as in claim 1 above and further in view of Brezny (US 5,322,821).

Instant claims add the further limitation of pore diameters, which Pryor in view of JP and Robyn does not teach. Brezny teaches refractory metal particles for filtering molten metals having pore sizes from 0.01 – 200 microns. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Brezny in the teaching of Pryor in view of JP and Robyn because Pryor in view of JP and Robyn does not specify the pore sizes, and because Brezny provides improved surface area and interconnected pores for improved capacity (see Brezny col 2 lines 8-47).

3. Claims 1,4,5,7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hess et al (US 3,172,757 in view of Neidhardt et al (US 4,177,235).

Claims 1: Hess teaches a process of filtering a molten metal using a bed of refractory particulates - see figures, col 2 lines 40-54. Hess does not teach the porosity of the particles in the bed. Neidhardt teaches corundum made by the same method as that of the applicant, and therefore, inherently would have the same porosity, as in claim 8 above. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Neidhardt in the teaching of Hess to have pure α corundum for higher melting point and crush resistance as required by Hess (col 2 lines 40-45).

Claim 4: Hess teaches particle size 6-20 mm ($\frac{1}{4}$ - $\frac{3}{4}$ in. see col 3 lines 64-68), and bed thickness as about 5 in, which falls in the range claimed (col 6 lines 1-10).

Claim 5: particles are corundum – see col 2 lines 44-47.

Claim 7: method of making the corundum particles is taught by Neidhardt – see abstract and col 3 line 27 – col 4 line 33.

Claim 9: Hess teaches a filtration device for liquid metal having corundum (col 2 lines 40-54, figures), but does not teach the porosity of the corundum. Neidhardt teaches corundum made by the same method as that of the applicant, and therefore, inherently would have the same porosity, as in claim 8 above. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Neidhardt in the teaching of Hess to have pure α corundum for higher melting point and crush resistance as required by Hess (col 2 lines 40-45)

Response to Arguments

Applicant's arguments with respect to claims 1-9 and 11 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

This action is made non-final due to the new grounds for rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 571-272-1151. The

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fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Krishnan Menon
Patent Examiner



BENJAMIN L. UTECH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700